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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/608,311

06/30/2000

Xiao-Dong Xiang

6050/54207

9392

7590

05/04/2004

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EXAMINER

PATEL, PARESH H

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/608,311	<b>Applicant(s)</b> XIANG ET AL.	
	<b>Examiner</b> Paresh Patel	<b>Art Unit</b> 2829	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 December 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-53 is/are pending in the application.
- 4a) Of the above claim(s) 7-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 22-53 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Inventorship and Declaration***

In view of the papers filed 12/17/2003, it has been found that this nonprovisional application, as filed, through error and without deceptive intent, improperly set forth the inventorship, and accordingly, this application has been corrected in compliance with 37 CFR 1.48(a). The inventorship of this application has been changed by addition of new inventor Yalin Lu.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of the file jacket and PTO PALM data to reflect the inventorship as corrected.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The declaration under 37 CFR 1.132 filed 12/17/2003 is sufficient to overcome the rejection of claim 22 and 53 based upon Xiao-Dong Xiang statement.

***Election/Restrictions***

The restriction requirement of 10/31/2002 has been expanded to increase the following species requirement. The previous requirement stands and further applicant is required to elect one species following the list below in addition to election for the restriction in office action of 10/31/2002.

Applicant elected claims 22-52 and added claim 53 in view of restriction requirement of 10/31/2002 and submitted new copy of specification and drawing.

This application contains claims directed to the following patentably distinct species of the claimed invention:

A) Method for measuring electrical impedance of a sample **by measuring interaction between probe tip and sample.**

A1) Method for measuring electrical impedance of a sample by measuring interaction between probe tip and sample **with a modulated external field** applied to said sample.

A1a) using bias electric field as modulated external field.

A1b) using magnetic field as modulated external field.

A1c) using optical modulation as modulated external field.

A2) Method for measuring electrical impedance of a sample by measuring interaction between probe tip and sample **with modulation of tip-sample distance.**

A2a) modulating tip-sample distance with a piezoelectric nano-positioning device.

A2b) modulating tip-sample distance with a lock-in amplifier.

A2c) determining a reference zero point of tip-sample distance as further defined at claim 34.

A2d) determining a reference zero point of tip-sample distance as further defined at claim 35.

**B) Method of measuring electrical impedance and determining a physical characteristic of sample.**

**B1) Method of determining a physical characteristic of sample as define at claim 36.**

B1a) using electric field modulation.

B1b) using magnetic field modulation.

B1c) using optical modulation.

B1d) using heat modulation.

**B2) Method of determining a physical characteristic of sample as define at claim 37.**

B2a) using electric field modulation.

B2b) using magnetic field modulation.

B2c) using optical modulation.

B2d) using heat modulation.

**B3) Method of determining a physical characteristic of sample as define at claim 38.**

B3a) using electric field modulation.

B3b) using magnetic field modulation.

B3c) using optical modulation.

B3d) using heat modulation.

B4) Method of determining a physical characteristic of sample as define at **claim 39.**

B4a) using electric field modulation.

B4b) using magnetic field modulation.

B4c) using optical modulation.

B4d) using heat modulation.

B5) Method of determining a physical characteristic of sample as define at **claim 40.**

B5a) using electric field modulation.

B5b) using magnetic field modulation.

B5c) using optical modulation.

B5d) using heat modulation.

B6) Method of determining a physical characteristic of sample as define at **claim 41.**

B6a) using electric field modulation.

B6b) using magnetic field modulation.

B6c) using optical modulation.

B6d) using heat modulation.

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B7) Method of determining a physical characteristic of sample as define at **claim 42.**

B7a) using electric field modulation.

B7b) using magnetic field modulation.

B7c) using optical modulation.

B7d) using heat modulation.

If applicant elects species A or B, further election of species is required from sub-species A1 or A2 or B1 or B2 or B3 or B4 or B5 or B6 or B7. Further election is required from sub-species of sub-species (e.g. one of A1a, A1b, A1c, A2a, A2b, A2c, A2d, B1a, B1b, B1c, B1d, B2a, B2b, B2c, B2d, B3a, B3b, B3c, B3d, B4a, B4b, B4c, B4d, B4a, B4b, B4c, B4d, B5a, B5b, B5c, B5d, B6a, B6b, B6c, B6d, B7a, B7b, B7c, B7d) as mentioned above, if applicant elects either one of A1 or A2 or B1 or B2 or B3 or B4 or B5 or B6 or B7.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claims 22 and 53 are generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

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Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

A telephone call was made to John P. O'Banion on 05/03/2004 to request an oral election to the above restriction requirement, but did not result in an election being made.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paresh Patel whose telephone number is 571-272-1968. The examiner can normally be reached on 8:00 to 4:30.



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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Paresh Patel  
May 03, 2004

